

### **AMENDMENTS TO THE SPECIFICATION**

Kindly amend paragraph [0028] as follows:

[0028] A reservation of resources is made or a job is submitted for processing on the cluster. In order to actually do intelligent data pre-stage and co-allocation of resources and time, the first step in intelligent data pre-stage is the analysis of time to stage data. The system must determine how long it's going to take to complete the particular task by estimating that timeframe based on network information, network speed, faults, statistical fluctuation, delivered bandwidth by the network, size, and any issues, ~~[[you]]~~ the system basically ~~have to ramp~~ ramps up the initialize step, a data transfer step, and a prologue step~~[[,]]~~ or a termination step ~~which~~ completes the record and verifies the successful transfer of data. In this regard, the method ~~comprises~~ includes identifying compute resources to process the job and locating various timeframes in which those resources have availability (402). This is the first step related to the compute resources. The system evaluates the data requirements and resources that the job would consume in terms of quantity of data and in terms of speed of migration of that data (404). This is the second step related to the data and network resources. Once the rate of data transfer is identified, the system determines the timeframe by which the data staging would need to make it available (406). The goal is to maximize the timing of the allocation of resources between the network bandwidth, the data cache or disk usage, and the compute resources. The allocation of the data cache and network bandwidth occurs earlier in time followed by the compute resources. There also is likely some data caching or bandwidth needs for post-processing transmission and storage of data.

Kindly amend paragraph [0033] as follows:

[0033] Once all the requests have been converted to start ranges, the system shifts the start ranges by the offset and performs an intersection operation (an AND operation) on the combination start range. With the intersection, the system shifts it back by the negative of the offset, wherein the resulting information provides when to start each reservation. Like any intersection operation, there will probably be multiple viable solutions that the system presents to the external system making the requests. The system could present the ~~invention~~ solutions as a number of start time availabilities. Once a start time is selected by an administrator or ~~[[use]]~~ user, the system shifts everything back and reserves the resources during those time frames.

Kindly amend paragraph [0034] as follows:

[0034] Once ~~you have that~~ the system completes the time estimate ~~[[done]]~~ and ~~performed~~ performs the steps as set forth above, the method ~~comprises~~ includes creating a co-allocation in time reservation (408). The key to this process is determining a number of calculations based on: (1) the duration and quantity of the first compute resources, (2) the duration and quantity of the second data and network bandwidth resources, (3) the fact that the second step must complete prior to the beginning of first step, (4) the job execute within certain constraints, (5) the offset time. With this information, the system performs a co-allocation reservation in which the system requests the resources for whatever the first step in time is. So in this case, the system determines the information for the data migration.